CEN-TECH™

MINI DIGITAL CLAMP METER

Model 96308

ASSEMBLY AND OPERATION INSTRUCTIONS

Due to continuing improvements, actual product may differ slightly from the product described herein.

Distributed Exclusively by HARBOR FREIGHT TOOLS®

3491 Mission Oaks Blvd., Camarillo, CA 93011

Visit our website at: http://www.harborfreight.com

TO PREVENT SERIOUS INJURY, READ AND UNDERSTAND ALL WARNINGS AND INSTRUCTIONS BEFORE USE.

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For technical questions or replacement parts, please call 1-800-444-3353.

SPECIFICATIONS

Functions	120 VAC / 220 VAC Continuity Check Volts DC Voltage Check AC Voltage Measuring Resistance Continuity Measurement Diode Measurement Data Hold
Display	LCD maximum reading 1999 Over range Indicator Low Battery Indicator
Maximum Capacity	1" Conductor
Test Leads	36" Long Red and Black with 90° Banana Plugs and 5/8" Nail Points
Accuracy	AC Volts: ± 1.5% of reading in 5 digits DC Volts: ± 1.2% of reading in 5 digits
Meter Input Maximum	300 Volts AC or DC
Power Supply	(3) 3-Volt Lithium Batteries CR-2032 (included)
Operating Temperature	32° - 104° F.
Dimensions	2-3/8"W x 5-7/8"H x 1-5/16" D
Net Weight	4.8 Ounces

Save This Manual

You will need this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures, parts list and assembly diagram. Keep your invoice with this manual. Write the invoice number on the inside of the front cover. Write the product's serial number in the back of the manual near the assembly diagram, or write month and year of purchase if product has no number. Keep this manual and invoice in a safe and dry place for future reference.

GENERAL SAFETY RULES

⚠WARNING!

READ AND UNDERSTAND ALL INSTRUCTIONS
Failure to follow all instructions listed below may result in electric shock, fire, and/or serious injury.
SAVE THESE INSTRUCTIONS

WORK AREA

1. **Keep your work area clean and well lit.** Cluttered benches and dark areas invite accidents.

2. **Do not operate electrical tools in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust.** Power tools may create sparks which may ignite the dust or fumes.
3. **Keep bystanders, children, and visitors away while operating or testing electrical equipment or leads.** Distractions can cause you to lose control.

ELECTRICAL SAFETY

1. **Avoid body contact with grounded surfaces such as pipes, radiators, ranges, and refrigerators.** There is an increased risk of electric shock if your body is grounded.
2. **Do not expose electrical equipment or lines to rain or wet conditions.** Water entering electrical equipment will increase the risk of electric shock.
3. **Do not abuse electrical tools, equipment or lines. Never use the Power Cord to carry the tools or pull the Plug from an outlet. Keep the Power Cord away from heat, oil, sharp edges, or moving parts. Replace damaged Power Cords immediately.** Damaged Power Cords increase the risk of electric shock.

PERSONAL SAFETY

Stay alert. Watch what you are doing, and use common sense when operating electrical equipment. Do not use electrical equipment while tired or under the influence of drugs, alcohol, or medication. A moment of inattention while operating electrical equipment may result in serious personal injury.

TOOL USE AND CARE

1. **Do not force the tool. Use the correct tool for your application.** The correct tool will do the job better and safer at the rate for which it is designed. Do not force the tool and do not use the tool for a purpose for which it is not intended.
2. **Do not use electrical equipment if the Power Switch does not turn it on or off.** Any tool that cannot be controlled with the Power Switch is dangerous and must be replaced.
3. **Store idle tools out of reach of children and other untrained persons.** Tools are dangerous in the hands of untrained users.
4. **Maintain tools with care.** Properly maintained tools are more reliable and are easier to control. Do not use a damaged tool. Tag damaged tools “Do not use” until repaired.

SERVICE

1. **Tool service must be performed only by qualified repair personnel.** Service or maintenance performed by unqualified personnel could result in a risk of injury.

2. **When servicing a tool, use only identical replacement parts.** Use of unauthorized parts or failure to follow maintenance instructions may create a risk of electric shock or injury.

SPECIFIC SAFETY RULES

1. **Maintain labels and nameplates on the tool.** These carry important information. If unreadable or missing, contact Harbor Freight Tools for a replacement.
2. **Maintain a safe working environment.** Make sure there is adequate surrounding workspace. Do not use this product in a damp or wet location.
3. **Do not use this meter if it is damaged.** Carefully inspect the case for cracks or breaks before use, paying careful attention to the case and insulators around the connectors.
4. **Inspect the test leads before use.** Check for damaged insulation or exposed wires. Check the leads for continuity. Do not use damaged leads with this meter.
5. **Do not use the meter if it operates abnormally.** The shock protection may be damaged. If in doubt have the meter serviced by a qualified technician.
6. **Do not expose the meter to voltages greater than the stated maximum (300 Volts).**
7. **Use additional caution when working with Voltages above 30 VAC, 42 V peak, or 60 VDC.** Voltages above these limits are significantly hazardous.
8. **Hold the probes behind the finger guards.** Do not allow your fingers to touch the tips of the probes when in operation.
9. **Connect the Common test lead before connecting the Live lead.** When disconnecting, remove the Live test lead first, then the Common lead.
10. **Remove the test leads from the unit before opening the battery compartment, or testing AC Current.**
11. **Do not operate the meter with the battery compartment open or any part of the case open or damaged.**
12. **Do not operate the meter after the Low Battery Indicator has come on.** Possible false readings or shock hazard can result. Replace the batteries as soon as the Low Battery indicator comes on.
13. **CAUTION: Whenever any lead or clamp of this tool is in contact with a voltage source, any other lead of this tool may conduct that voltage.** Do not handle any lead if any other lead is in contact with a voltage source.
14. **WARNING! People with pacemakers should consult their physician(s) before using this product.** Electromagnetic fields in close proximity to a heart pacemaker could cause interference to or failure of the pacemaker. In addition, people with pacemakers should adhere to the following:
    - Avoid operating power tools alone.
    - Don't use a power tool with the power switch locked on.
    - If powered via a power cord be certain that the tool is properly grounded. A ground

fault interrupt (GFCI) system is also a good precaution. This inexpensive device is a good safety measure because it prevents a sustained electrical shock.

- Properly maintain and inspect all tools before use to avoid electrical shock.

GROUNDING

⚠WARNING!

Improperly connecting the grounding wire can result in the risk of electric shock. Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded. Do not modify the power cord plug provided with the tool. Never remove the grounding prong from the plug. Do not use any tool or appliance if the power cord or plug is damaged. If damaged, have it repaired by a service facility before use. If the plug will not fit the outlet, have a proper outlet installed by a qualified electrician.

UNPACKING

When unpacking, check to make sure that the item is intact and undamaged. If any parts are missing or broken, please call Harbor Freight Tools at the number shown on the cover of this manual as soon as possible.

COMPONENTS OF THE METER

1. **Clamp Jaw.** Also known as the "Amp Clamp" the jaw is used to measure AC Amperage.
2. **Trigger.** Used to open and close the Clamp Jaws for AC Amperage measurement.
3. **Display.** LCD Screen with maximum reading value of 1999.
4. **"COM" Jack.** The "Common" jack used with the Black (negative) Test Lead.
5. **"Red" Jack.** Used with the Red (positive) Test Lead.

6. **Rotary Switch.** Used to select desired function and range. Also used to turn meter ON and OFF.
7. **"Hold" button.** Pressing the Hold button will hold the current reading on the LCD screen. The word "HOLD" will also appear on the screen. Pressing the Hold button again will release the reading and the word "HOLD" will disappear from the screen.

Battery Replacement

1. Remove the screw on the Battery Compartment, and insert (3) new 3VDC CR2032 batteries. Be sure all three batteries have the "+" side facing upward. Incorrect battery polarity will prevent proper operation of the meter. NOTE: You may have to remove the clip to access the Battery Compartment. Please be sure to properly recycle all old batteries.

OPERATION INSTRUCTIONS

Operating Procedures

NOTE: Follow these operating procedures whenever using this test meter for personal safety and best results.

1. Before use, verify the meter's operation by checking a known source.
2. Connect the (black) Common Test Lead before connecting the (red) Live Test Lead. Remove in reverse order, disconnecting the Live Test Lead first, then the Common Test Lead.
3. Remove all Test Leads from the Meter before using the Amp Clamp.

NOTE: This is a CAT II measurement tool. CAT II indicates low voltage, including household voltage ranges. Do not exceed the voltage range of this meter, and do not use for CAT III nor CAT IV applications.

Measuring DC Voltage

1. Insert the plug of the Black Test Lead into the COM jack. Insert the Red Test Lead into the Red jack.
2. Set the Rotary Switch to the "300V=" position.
3. Connect the Red Test Lead to the hot source or load to be measured, and the Black Test Lead to the neutral source to be measured.
4. Read the voltage value (VDC) on the LCD Display Screen. The screen will also display the polarity of the Red Test Lead ("+" or "-").

Measuring AC Voltage

1. Insert the plug of the Black Test Lead into the COM jack. Insert the Red Test Lead into the Red jack.

2. Set the Rotary Switch to the “300V~” position.
3. Connect the Red Test Lead to the hot source or load to be measured, and the Black Test Lead to the neutral source to be measured.
4. Read the voltage value (VAC) on the LCD Display Screen.

Measuring AC Current

1. Set the Rotary Switch to the desired AC current range.
2. Press the Trigger to open the Clamp Jaw. Clamp the Jaw on one of the wires to be tested. Keep the wire in the center of the Jaw. NOTE: Only one wire can be tested at a time, or else the readings from two wires will cancel each other and result in a false reading.
3. CAUTION: Do not touch current bearing AC wires with your hand.
4. Read the reading on the display.

Measuring Resistance

NOTE: Before measuring resistance, be sure the power to the circuit has been disconnected and all capacitors have been discharged.

1. Insert the plug of the Black Test Lead into the COM jack. Insert the Red Test Lead into the Red jack.
2. Set the Rotary Switch to the desired resistance range, either 2000 Ohms or 200 kOhms.
3. Connect the Red Test Lead to the hot source or load to be measured, and the Black Test Lead to the neutral source to be measured.
4. Read the resistance value on the LCD Display Screen.
5. NOTE: The buzzer will sound if measured resistance is less than approximately 30 Ohms with the rotary switch in the 2000 Ohm position.

Measuring for Continuity

1. Insert the plug of the Black Test Lead into the COM jack. Insert the Red Test Lead into the Red jack.
2. Set the Rotary Switch to the continuity position.
3. Connect the Red Test Lead to the hot source or load to be measured, and the Black Test Lead to the neutral source to be measured.
4. Read the resistance value on the LCD Display Screen. NOTE: The buzzer will sound if measured resistance is less than approximately 30 Ohms.

Measuring a Diode

1. Insert the plug of the Black Test Lead into the COM jack. Insert the Red Test Lead into the Red jack. NOTE: The polarity of the Red Test Lead is “+”.

2. Set the Rotary Switch to the diode position.
3. Connect the Red Test Lead to the anode of the diode, connect the Black Test Lead to the cathode of the diode.
4. Read the approximate forward voltage on the LCD Display Screen. NOTE: The reading units are “mV”.

INSPECTION, MAINTENANCE, AND CLEANING

1. ⚠**WARNING!** Make sure the Rotary Selector Switch of the tool is in its “OFF” position before performing any inspection, maintenance, or cleaning procedures.
2. **BEFORE EACH USE,** inspect the general condition of the tool. Check for loose screws, misalignment or binding of moving parts, cracked or broken parts, damaged electrical wiring, and any other condition that may affect its safe operation. If abnormal noise or vibration occurs, have the problem corrected before further use. **Do not use damaged equipment.**

MAINTENANCE CHART						
Maintenance Type	**Before Use**	**After Use**	**Weekly**	**Monthly**	**Every 6 Months**	**Yearly**
Inspect tool for damage (see #2, above)	X					
Wipe off with clean, moist cloth		X	X	X	X	X

Replacing the Battery

1. When the “LOBT” or Low Battery symbol is shown on the Display Screen, the batteries are low and must be replaced.
2. Remove the screw on the Battery Compartment, and replace the batteries with (3) new batteries of the same type (3VDC CR2032). Be sure all three batteries have the “+” side facing upward. Incorrect battery polarity will prevent proper operation of the meter. NOTE: You may have to remove the clip to access the Battery Compartment.

TROUBLESHOOTING

Problem	Possible Causes	Probable Solutions
Tool will not start	1. Batteries worn out. 2. Incorrect battery polarity	1. Replace batteries 2. Ensure that all batteries have “+” facing upward in Battery Compartment.
Erratic or incorrect readings	1. Loose or damaged Test Leads. 2. Poor connection or corroded parts.	1. Check condition on Test Leads. 2. Check condition of part and clean if necessary.

LIMITED 90 DAY WARRANTY

Harbor Freight Tools Co. makes every effort to assure that its products meet high quality and durability standards, and warrants to the original purchaser that this product is free from defects in materials and workmanship for the period of 90 days from the date of purchase. This warranty does not apply to damage due directly or indirectly, to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities, criminal activity, improper installation, normal wear and tear, or to lack of maintenance. We shall in no event be liable for death, injuries to persons or property, or for incidental, contingent, special or consequential damages arising from the use of our product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

To take advantage of this warranty, the product or part must be returned to us with transportation charges prepaid. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection verifies the defect, we will either repair or replace the product at our election or we may elect to refund the purchase price if we cannot readily and quickly provide you with a replacement. We will return repaired products at our expense, but if we determine there is no defect, or that the defect resulted from causes not within the scope of our warranty, then you must bear the cost of returning the product.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

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